

**DESCRIPTIONS OF *MICROMYRMEX DARLINGTONI*, N. SP., FROM
JAMAICA AND *MICROMYRMEX SPATULATA*, N. SP., FROM HISPANIOLA
(COLEOPTERA: CURCULIONIDAE: OTIDOCEPHALINI)**

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Abstract.—*Micromyrmex darlingtoni*, n. sp. from Jamaica and possibly from Haiti, and *Micromyrmex spatulata*, n. sp. from the Dominican Republic, are described and illustrated. This represents the first record of the tribe Otidoccephalini from Jamaica. *Micromyrmex darlingtoni* is distinguished from other described *Micromyrmex* by the orange-red elytra that contrast with the shining, black body. All other described *Micromyrmex* have black elytra. *Micromyrmex spatulata* is distinguished by the presence of spatulate setae on the elytra, which are lacking in all other described *Micromyrmex*.

Key Words: Curculionidae, Otidoccephalini, *Micromyrmex*, new species, West Indies, Hispaniola, Jamaica, Dominican Republic, Haiti

The genus *Micromyrmex* Sleeper was re-defined by Ivie and Sikes (1995) and enlarged from five to ten species. Weevils in this genus are known from the Greater Antilles, the Bahamas, Central America and the North American Mainland (O'Brien and Wibmer 1982, Ivie and Sikes 1995). No species of the tribe Otidoccephalini was previously known from Jamaica. We take this opportunity to describe two new species from the West Indies, one of which is known from Jamaica.

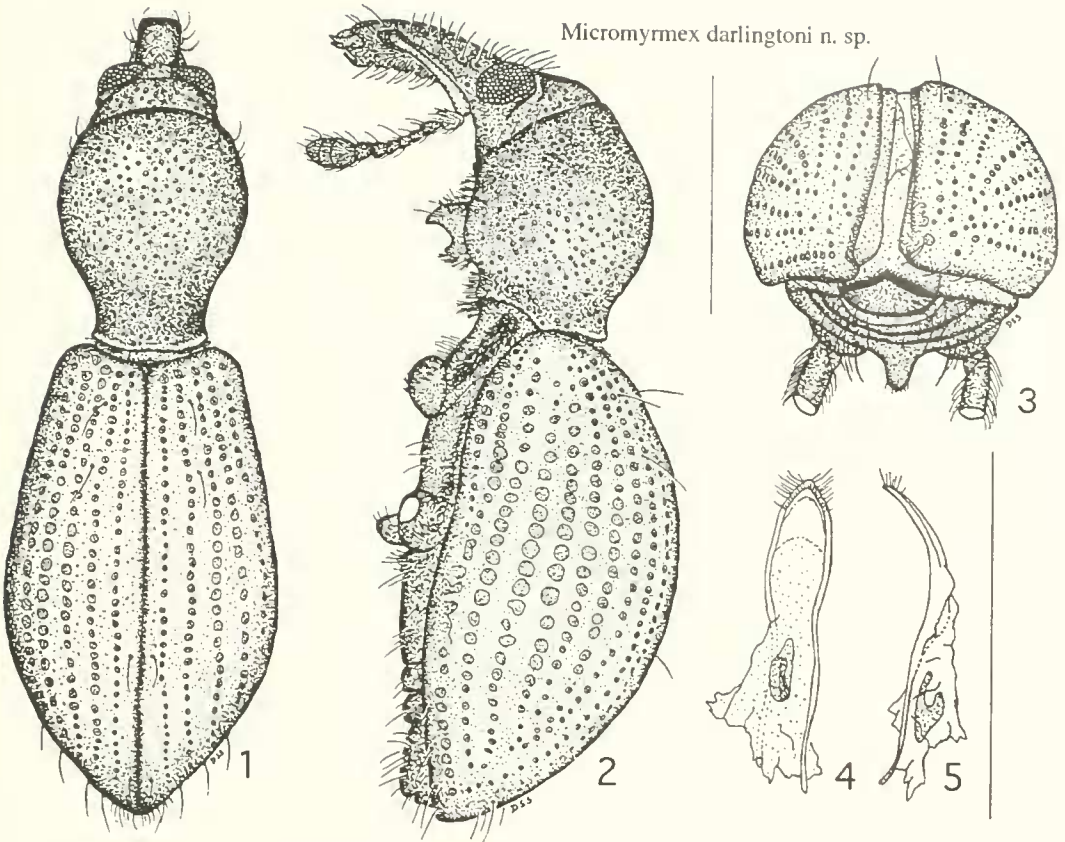
In the descriptions below, we follow the descriptive terminology of Ivie and Sikes (1995). Collection acronyms are as follows: Museum of Comparative Zoology (MCZC), Harvard University, Cambridge, MA, U.S.A.; Barry D. Valentine Collection (BDVC), Columbus, OH, U.S.A.; H. and A. Howden Collection (HAHC), Ottawa, Canada; Charles W. O'Brien Collection (CWOB), Tallahassee, FL, U.S.A.; and Mi-

chael A. Ivie Collection (MAIC), Bozeman, MT, U.S.A.

***Micromyrmex darlingtoni* Sikes and Ivie,
new species
(Figs. 1–5)**

Diagnosis.—The adults of this species can be differentiated from all described *Micromyrmex* by their orange-red elytra; black pronotum, head, annulae of antennae, basal tarsomere; lack of femoral teeth on the meso- and metafemora; and by the presence and shape of the large tubercle on ventrite I of the male (Fig. 3).

Description.—Holotype male. Length (elytral apex to anterior pronotal margin) 2.9 mm, width across humeri 0.8 mm. Head, annulae of antenna, basal tarsomere and pronotum shining black; antennal scape, mandible, and remainder of tarsi yellow; thoracic sterna, legs, and abdominal sterna rufus; elytra orange red, eyes silver; all setae and scales white.



Figs. 1-5. *Micromyrmex darlingtoni*, holotype male (scale = 1.0 mm). 1, Dorsal view. 2, Lateral view. 3, Posterior apical view. 4-5, Aedeagus (scale = 1.0 mm), length = 0.82 mm. 4, Dorsal view. 5, Lateral view.

Head (Figs. 1, 2): Upper mid-portion coarsely punctate, lacking setae, separated from lateral portion by a weakly defined supraocular sulcus. Eyes large, dorsal, separated dorsally by approximate width of antennal club; margined above and below with long, fine setae. Rostrum stout, curved in profile; width subequal to diameter of eye; fine setae throughout, not obscuring surface; scrobe lateral, directed below eye. Antenna (Fig. 2) with scape reaching anterior $\frac{1}{3}$ of eye, funicle 7-segmented, first segment stouter and more setose than remainder; club ovate, annulate, length subequal to that of last 4 funicular segments combined.

Pronotum (Figs. 1, 2): Elongate, $1.25\times$ longer than wide, globose anteriorly, widest just before middle, broadly constricted pos-

teriorly; coarsely punctate; row of fine setae at lateral-anterior margin.

Meso- and metathoracic dorsal surface (Figs. 1, 2): Elytra with length $1.7\times$ greater than width, widest near middle, with 10 punctate striae, punctures surrounded by disk-like darkened regions; humeri rounded and smooth; 2 setigerous punctures in basal $\frac{1}{4}$ of 2nd interstria, 2 others on suture near apex; smaller setigerous punctures on margin of apical $\frac{1}{3}$, flange along left elytral suture fitting beneath right elytron, causing asymmetrical extreme apex (Fig. 3). Scutellum covered by dense white setae. Metathoracic wings fully developed.

Ventral surface: Prosternum thickly set with radiate-pectinate scales before, between and behind coxae. Mesosternum

fringed posteriorly and mesepisternum completely covered with radiate-pectinate scales. Metasternum fringed posteriorly with radiate-pectinate scales; metepisternum completely covered with radiate-pectinate scales; remainder of metasternum with scattered fine setae. Abdomen with large tubercle on intercoxal process of ventrite I, tubercle subequal to length of antennal club (Fig. 3); line of radiate-pectinate scales behind coxae on ventrite I; ventrites I and II appear fused, and together equal length of ventrites III–V combined, ventrite II with long, fine setae posterolaterally, ventrite V with scattered, long, fine setae.

Legs: Procoxae subcontiguous; mesocoxae separated by width of funicle; metacoxae widely separated. Pro- and mesocoxae with radiate-pectinate scales; dorsal surface of femora sparsely covered with long, coarse setae. Profemur with distinct tooth at apical $\frac{1}{4}$; meso- and metafemora unarmed; protibia narrow, parallel-sided, minutely dentate internally in apical $\frac{1}{2}$; meso- and metatibiae rugose interiorly in apical $\frac{1}{2}$. Tibiae with long, moderately dense setae, densest internally and thickly covering internal apices, mucro buried within setae of internal apices. Tarsi thickly padded with setae; claws with quadrate teeth basally.

Aedeagus (Figs. 4, 5): Strongly curved in profile; numerous setae on broad apex; length 0.82 mm; internal sack bearing single large sclerite.

Female.—Lacking tubercle on the intercoxal process of abdominal ventrite I, (showing only a slight swelling in its place). Eyes smaller, more widely separated than of male.

Variation.—The type series ranges in length from 2.8–3.0 mm, and the width across the humeri from 0.8–0.9 mm. The setae on the 2nd elytral interstria and sutural margins vary in number and placement. Two paratypes collected at 2256m (7400') on Blue Mountain, Jamaica, have much darker coloration, particularly the elytra which have the orange-red replaced by a dark mahogany.

Type material.—HOLOTYPE. ♂: Whitfield Hall; Blue Mts; nr 4500 ft.; Aug. 13–20/ Jamaica; 1934; Darlington [MCZC]. PARATYPES (5): 1 ♂, 1 ♀ [MCZC], 1 ♂ [MAIC]; same data as holotype. 1 ♂ [HAHC] and 1 ♀ [CWOB]; JAMAICA, 7400'; Blue Mt. Peak; VII. 27–28. 1966; Howden & Becker.

Additional material examined.—Four females from Furcy, Haiti, collected at 4000' on VII-9-56 [9 July 1956] by B & B Valentine while sweeping bushy roadsides, are not included in the type series [BDVC & MAIC]. These four agree in all respects with the Jamaican type-series, but the lack of males leaves their identity in doubt. More material, particularly, males from Haiti is required to establish their identity.

Etymology.—The species is named in honor of one of the collectors, Philip J. Darlington, Jr.

Micromyrmex spatulata Sikes and Ivie,
new species

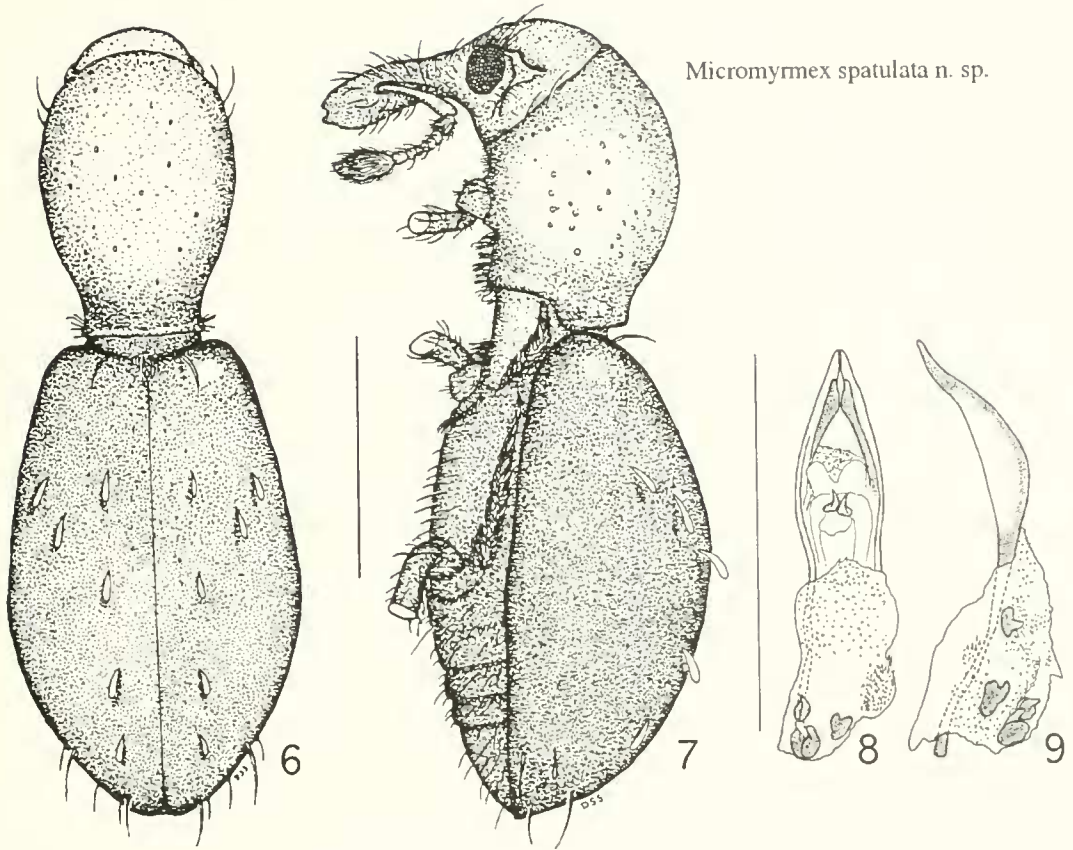
(Figs. 6–9)

Diagnosis.—The adults of this species can be differentiated from other described *Micromyrmex* by the presence of spatulate setae on the elytra (Figs. 6, 7) (shared by no other known *Micromyrmex*), their color, (only three described species have red-orange head/prothorax and black elytra), their size (only one of the three bicolored species is as small), and the total lack of femoral teeth (two of the bicolored species display femoral teeth).

This species most closely resembles *Micromyrmex pulicarius* (Boheman), but differs in the lack of elytral punctures and striae, and in the presence of spatulate setae.

Description.—Holotype male. Length (elytral apex to anterior pronotal margin) 2.9 mm, width across humeri 0.7 mm. Head (exclusive of rostrum), pro- and mesocoxae, prothorax, pro- and mesosterna rufus; legs, rostrum, annulae of antenna and elytra black; antennal scape orange; eyes silver; all setae and scales white.

Head (Figs. 6, 7): Upper mid-portion



Figs. 6-9. *Micromyrmex spatulata*, composite of female paratypes (scale = 1.0 mm). 6, Dorsal view. 7, Lateral view. 8-9, Aedeagus (scale = 1.0 mm), length = 1.1 mm. 8, Dorsal view. 9, Lateral view.

weakly punctate, lacking setae, separated from lateral and posterior portion by a strong declivity becoming a deep supraocular sulcus. Supraocular sulcus undercutting dorsal and lateral margin of eyes, with a bivaginal bridge at middle of eye, posterior edge of channel curving caudally toward pronotal margin before turning medially as shallow groove joining groove from other side across vertex. Eyes separated dorsally by width of antennal club; ringed by long, fine setae along medial margins. Rostrum stout, curved in profile, width $1.25\times$ diameter of eye, widest at apex; elongate fine setae throughout, not obscuring surface; scrobe lateral, directed below eye. Antenna (Fig. 7) with scape clavate, reaching anterior margin of eye; funicle 7-segmented, first segment stouter, ca.

twice size of and more setose than each remaining segment, setal density increasing towards segment VII; club ovate, annulate, dense setae obscuring surface, length subequal to that of last 6 funicular segments combined.

Pronotum (Figs. 6, 7): Elongate, $1.43\times$ longer than wide, globose anteriorly, widest at middle, broadly constricted posteriorly; densely, coarsely, shallowly punctate; with fine setae at antero-lateral and postero-lateral margins.

Meso- and metathoracic dorsal surface: Elytra $1.5\times$ longer than wide, widest just behind middle, with weakly punctate, almost obsolete striae, humeri evident, rounded and smooth; large spatulate setae on interstriae 2, 4, and 6. On holotype, 4 setae are indicated on interstriae 2 and 1 seta each

on interstriae 4 and 6; 4 to 5 elongate, thickened (not spatulate) setae per elytron, bordering inner and outer elytral margins near apex, flange along left elytral suture fits beneath right elytron, causing extreme apex of elytral suture to be asymmetric (see Fig. 3). Scutellum covered by dense white setae.

Ventral surface: Prosternum thickly set with radiate-pectinate scales. Mesosternum fringed with radiate-pectinate scales along posterior margin and on intercoxal process; mesepisternum completely covered with radiate-pectinate scales. Metasternum with scattered simple setae and fringed anteriorly with radiate-pectinate scales, metepisternum completely covered with radiate-pectinate scales. Ventrites I and II appear fused, suture obsolete, and together equal length of ventrites II–V combined, with surfaces bearing scattered setae in line posterior from coxae, glabrous medially and laterally. Ventrites III and IV equal in length, with evenly scattered setae over entire surface. Ventrite V just longer than combined length of ventrites III and IV, with scattered setae, setae shorter and less dense than on previous ventrites.

Legs: Procoxae contiguous; mesocoxae separated by width of funicle, metacoxae widely separated. Procoxae set with radiate-pectinate scales intermixed with simple setae; mesocoxae and metacoxae with sparse radiate-pectinate scales; metacoxa with dense fringe of radiate-pectinate scales along posterior surface. Foretrochanter with few radiate-pectinate scales, all trochanters with sparse setae. Femora lacking indication of teeth; profemur weakly clavate, mesofemur less so, metafemur almost parallel-sided; pro- and mesofemora with evenly scattered long setae; metafemur with long setae crowded on ventral surface, with lateral surfaces subglabrous and dorsal surface with dense fringe of stout, almost clavate setae. Tibiae parallel-sided, very minutely dentate internally in apical $\frac{1}{2}$, with evenly spaced setae, densest on internal apices, micro buried within setae of internal api-

ces. Tarsi thickly padded with setae, claws with quadrate teeth basally.

Aedeagus (Figs 8, 9): Large in proportion to body size, length 1.10 mm; median lobe long and slender, apex acute, glabrous; internal sack bearing numerous small sclerites, 4 large sclerites posterior, 2 central.

Type Material.—HOLOTYPE. ♂: DOM. REP., Peravia; 36km. NW. SanJose; de Ocoa, Aug. 9; 1979 C. W. O'Brien [CWOB]. PARATYPES (3). 2 ♀ with same data as holotype [HAHC, MAIC]. 1 ♀: DOM. REP., LaVega; 18km. E. El Rio, Aug. 10, 1979 crest, cloud forest C.W.O'Brien [CWOB].

Etmology.—The specific epithet refers to the autapomorphic spatulate setae of this species.

Remarks.—The description of these species brings the number of possible aposematic *Micromyrmex* to eight of eleven described. The discovery that the larvae of *Micromyrmex asclepia* Ivie and Sikes feed within the stems of *Asclepias nivea* L. (Ivie and Sikes 1995) suggested the hypothesis that these animals may sequester cardenolides for chemical protection. The greatly developed supraocular channels of *M. spatulata* are hypothesized to be associated with possible repugnatorial exudations and aposematism (Ivie and Sikes 1995). *Micromyrmex darlingtoni* has supraocular sulci that are less distinct than those of *M. asclepia*, and *M. spatulata*, but the distinctly contrasting coloration of the individuals collected near 4,500' supports the prediction that adults of this species are either Batesian mimics or are themselves unpalatable to some degree. The series of females from Haiti that might be *M. darlingtoni* were collected from bushes along roads and were from the same collection event in which seven *M. asclepia* adults were captured. Because it is known that *M. asclepia* uses West Indian milkweed as a host it is worth noting that we have at least some evidence, albeit circumstantial, that these possible *M. darlingtoni* adults may also use milkweed as a host plant.

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LITERATURE CITED

- Ivie, M. A. and D. S. Sikes. 1995. Description of *Micromyrmex asclepia* new species, with a redefinition of the genus and life history notes (Curculionidae: Otidoccephalina). *Coleopterists' Bulletin* 49:235-248.
- O'Brien, C. W. and G. J. Wibmer. 1982. Annotated checklist of the weevils (Curculionidae *sensu lato*) of North America, Central America and the West Indies (Coleoptera: Curculionoidea). *Memoirs of the American Entomological Institute* No. 34, ix + 328 pp.